The background of the slide is a photograph of a coastal scene. In the foreground, there are white, frothy waves breaking. In the middle ground, two large, dark, rounded rocks protrude from the water, with waves crashing against them. The sky is a pale, clear blue. The text is overlaid on this image.

Perspectives on coastal science and management

Rob Young, WCU
Program for the Study of
Developed Shorelines

Why do I love South Carolina?

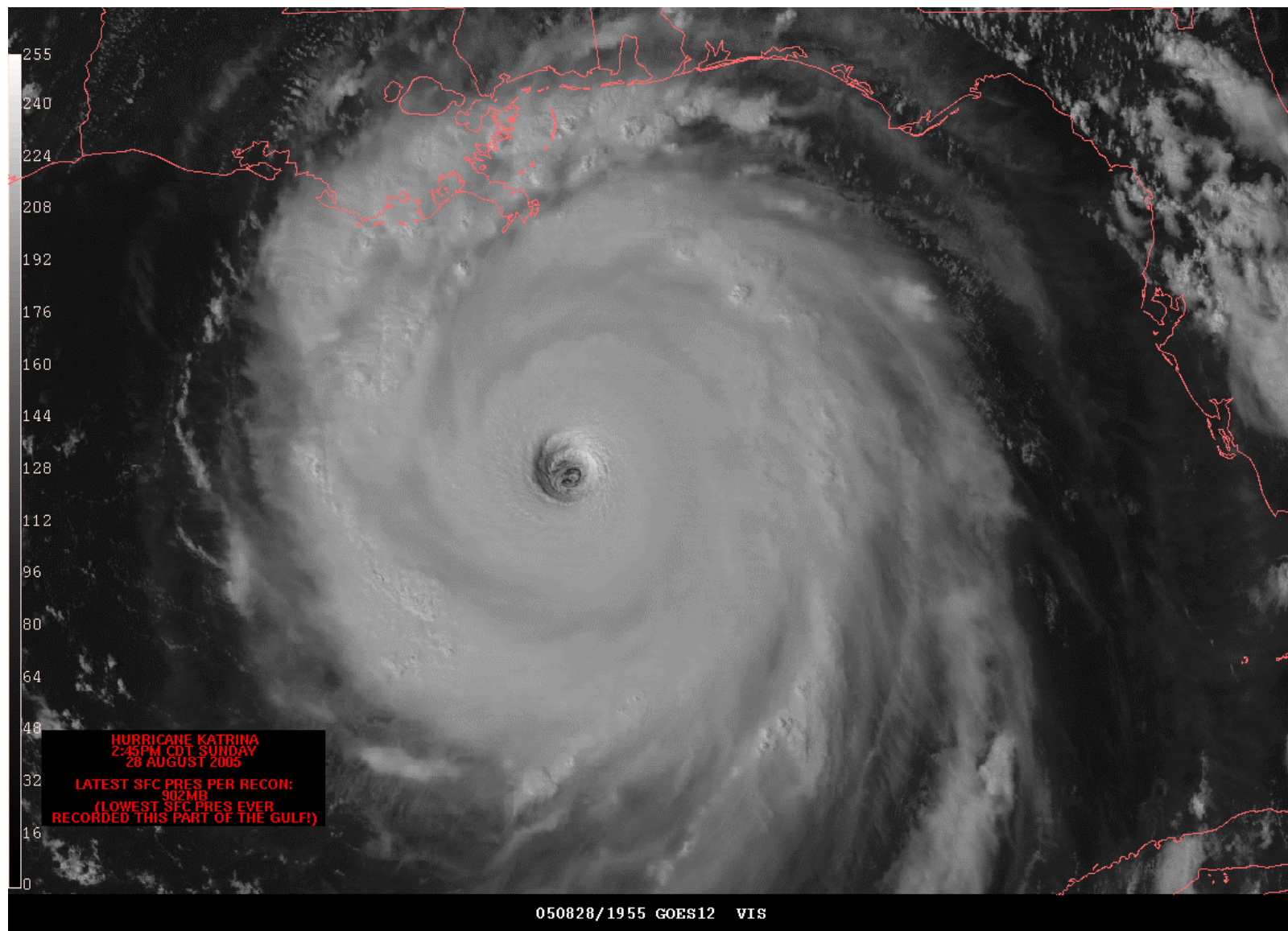


Program for the Study of Developed Shorelines

- Joint Duke University/WCU program
- Conduct coastal process research
- Translate that research into coastal management recommendations
- Public outreach
- Educate the next generation of coastal managers

PSDS Projects

- Mapping all coastal engineering in National Parks (NPS)
- Impacts of Elwha River dam removal on the coastal environments of the Strait of Juan de Fuca (NSF)
- Geomorphic controls on storm surge and inundation from Hurricane Katrina (PERI)
- Rivercane restoration (EBCI)
- Comprehensive, national database of beach nourishment project, volumes, and costs

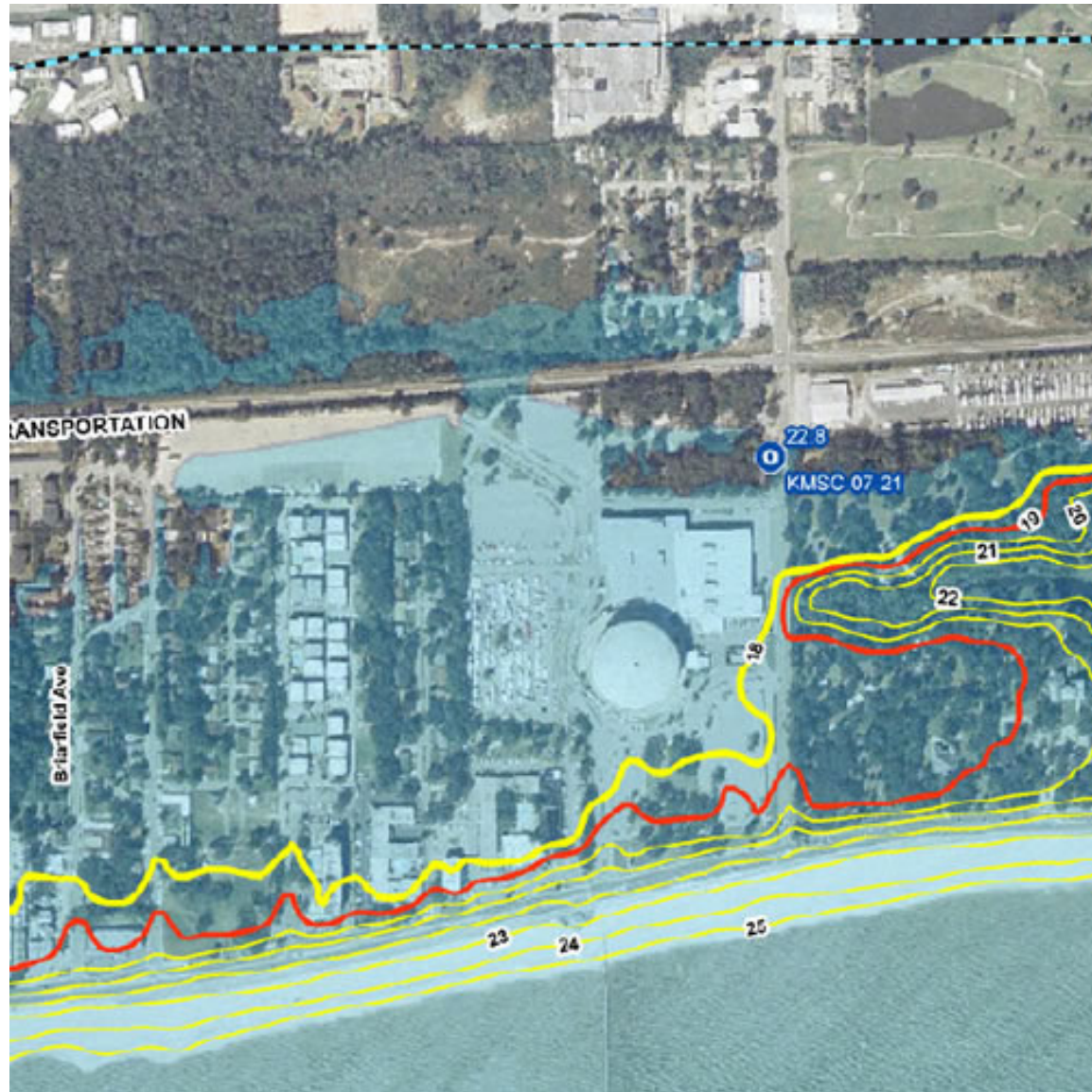
















PSDS/USGS/NOAA white paper on storm surge data

- Hazard mapping and the prediction of storm surge and inundation is problematic due to a lack of data
- In situ, storm surge height data is almost non-existent
- Therefore, we do not have adequate data for calibrating or verifying predictive models like ADCIRC or SLOSH
- Any predictions of storm surge should be viewed with caution
- Needs: New data collection, Geo-referenced database

Advising Local Communities

- Ocean Point Property Owners, Wild Dunes
- Nature Conservancy of New York
- Surfrider Foundation, Palm Beach Florida
- North Carolina Coastal Federation/John Locke Foundation, North Carolina













Topics

- Coastal engineering structures
- Beach nourishment
- Relocation

Impacts of erosion control structures

- Seawall, groins, jetties, sandbags, snake oil
- Documented negative impact
- Designed to protect property, not beaches
- Expensive, often don't work, increase the need for nourishment







Other problems with erosion control structures

- Lawsuits
- Unpredictable impacts
- Keeping cells full is difficult if not impossible
- Removal never happens



Beach nourishment

- Better than hard structures
- Continues to provide a recreational beach
- May provide habitat
- Frequently used



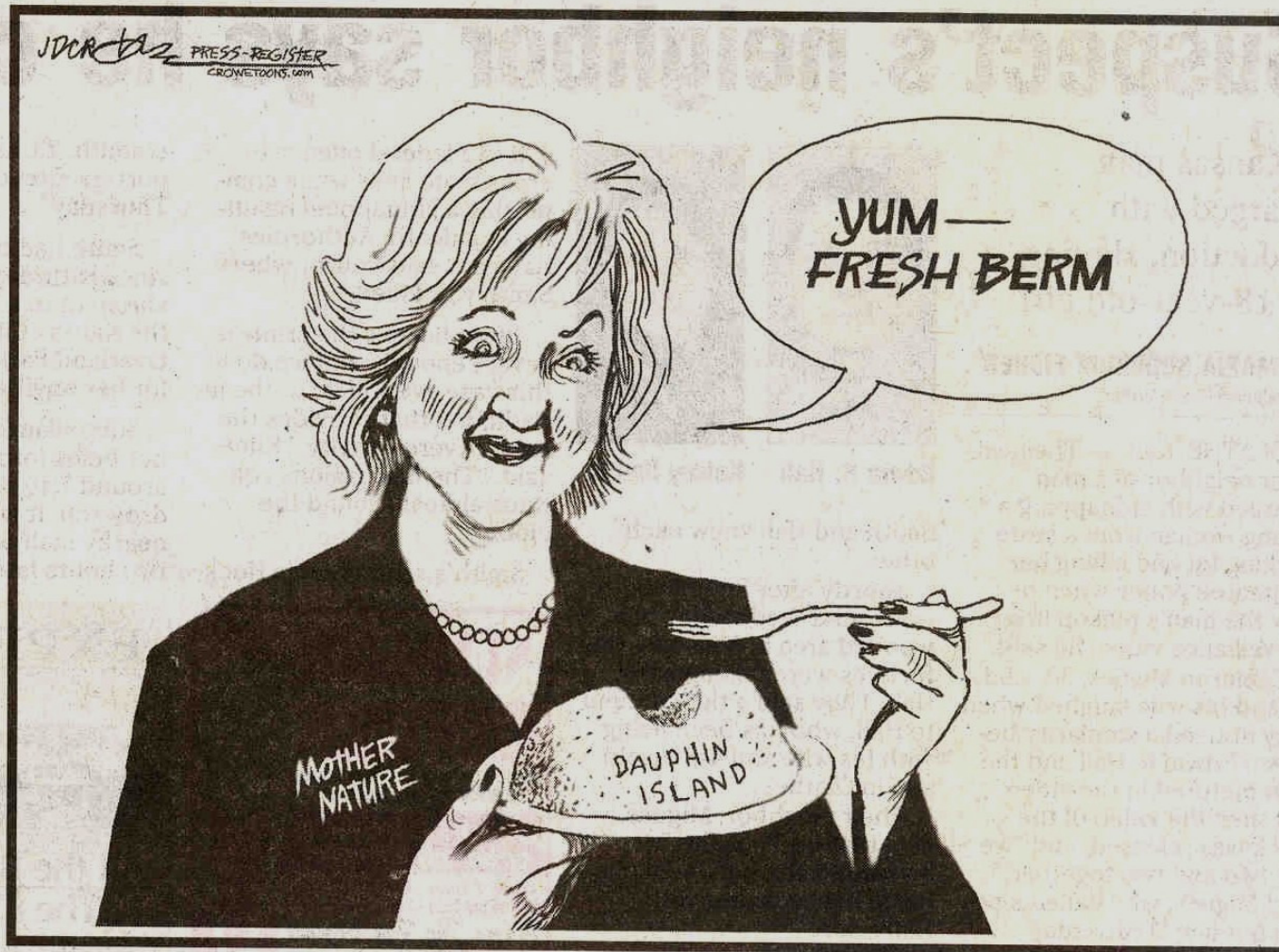
Beach nourishment

- Temporary
- Environmental damage still unknown
- Can also have impacts on neighboring shorelines if sand removal is poorly planned
- Sand getting harder to find
- Who should pay? Free market









Coastal engineering

- Need to understand the limits of our ability to predict processes and storms
- There is no such thing as an unexpected or unusual storm
- Uncertainty must be honestly expressed to the public and cost benefit ratios need to be realistic



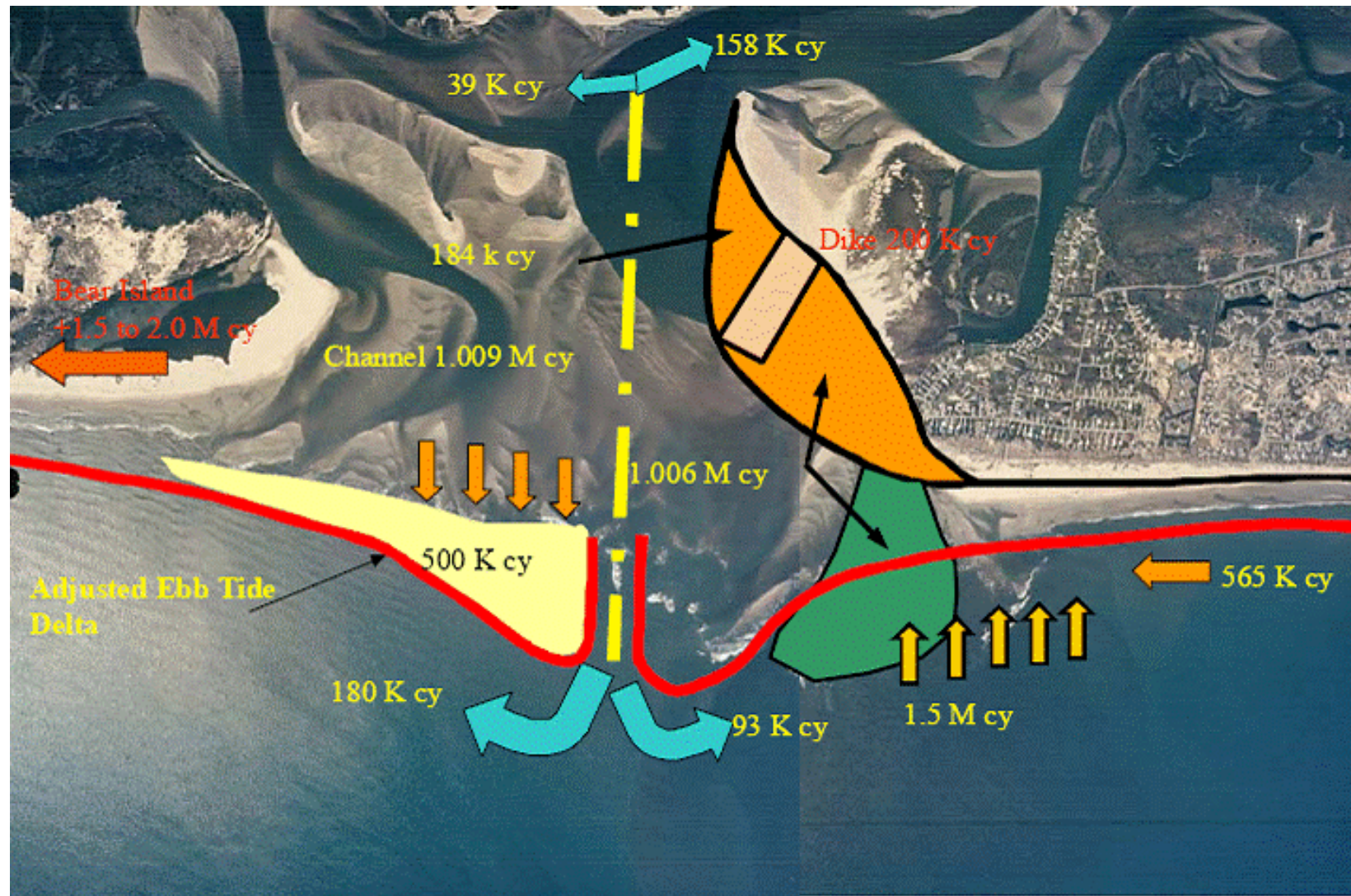


Figure 8.1 Sediment Redistribution following Channel Relocation



□ Relocation of infrastructure

- This is not a radical idea. May not impact tax base as feared
- Environmentally beneficial and saves lives
- This represents the best hope for some communities
- The only long-term solution
- How long is the public responsible for maintaining individual investments?
Sometimes people make bad investments

